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(FILE 'HOME' ENTERED AT 15:07:14 ON 26 AUG 2005)

FILE 'HCAPLUS' ENTERED AT 15:07:22 ON 26 AUG 2005

L1 1 US2005119219/PN OR (US2004-507472# OR WO2003-EP2538#)/AP,PRN  
L2 1 IT2002-PD64#/AP,PRN

FILE 'REGISTRY' ENTERED AT 15:09:39 ON 26 AUG 2005

FILE 'HCAPLUS' ENTERED AT 15:10:03 ON 26 AUG 2005

L3 1 L1,L2

FILE 'REGISTRY' ENTERED AT 15:10:13 ON 26 AUG 2005

FILE 'HCAPLUS' ENTERED AT 15:10:13 ON 26 AUG 2005

L4 TRA L3 1- RN : 3 TERMS

FILE 'REGISTRY' ENTERED AT 15:10:15 ON 26 AUG 2005

L5 3 SEA L4

FILE 'WPIX' ENTERED AT 15:10:20 ON 26 AUG 2005

L6 1 L3

=> b hcap

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FILE COVERS 1907 - 26 Aug 2005 VOL 143 ISS 10

FILE LAST UPDATED: 25 Aug 2005 (20050825/ED)

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L3 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:737790 HCAPLUS

DN 139:262427

ED Entered STN: 19 Sep 2003

TI Ester derivatives of hyaluronic acid, preparation, hydrogel materials by photocuring, and biomedical use

IN Bellini, Davide; Zanellato, Anna Maria

PA Fidia Advanced Biopolymers S.R.L., Italy

SO PCT Int. Appl., 27 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C08B037-08

ICS C08J003-28; C08J003-075

CC 44-5 (Industrial Carbohydrates)

Search done by Noble Jarrell

Section cross-reference(s): 63

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003076475	A1	20030918	WO 2003-EP2538	20030312 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2478655	AA	20030918	CA 2003-2478655	20030312 <--
EP 1519962	A1	20050406	EP 2003-743875	20030312 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 2005119219	A1	20050602	US 2003-507472	20030312 <--
PRAI IT 2002-PD64	A	20020312	<--	
WO 2003-EP2538	W	20030312	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003076475	ICM	C08B037-08
	ICS	C08J003-28; C08J003-075
WO 2003076475	ECLA	A61L027/20+C08L5/08; A61L029/04D+C08L5/08; A61L031/04D+C08L5/08; C08B037/00P2F
US 2005119219	NCL	514/054.000
OS	MARPAT 139:262427	
AB	The hyaluronic acid ester derivs., have carboxylic groups are partially esterified with hydroxy groups of propiophenone derivs. Thus, 6.21 g tetrabutylammonium salt of hyaluronic acid, mol. weight 180,000 Da (10 meq.) are solubilized in 248 mL DMSO at room temperature, 2 g 2-hydroxy-4-(2-hydroxyethoxy)-2-methylpropiophenone (HHMP) bromide (7 meq.) are added, the solution is maintained at 37° for 48 h, 2.5% NaCl solution is added and the mixture is poured under stirring into 750 mL acetone, precipitating, filtering and washing three times with 100 mL acetone:water 5:1, three times with 100 mL acetone, and lastly vacuum-drying 24 h at 30° gave 5.3 g HHMP ester product.	
ST	hyaluronic acid ester prepn photocuring hydrogel biol use	
IT	Drug delivery systems (controlled-release; hyaluronic acid esters photocured for hydrogels for)	
IT	Cell proliferation (fibroblast, scaffolds; hyaluronic acid esters photocured for hydrogels for)	
IT	Medical goods (hyaluronic acid esters photocured for hydrogels for)	
IT	Drug delivery systems (hydrogels; hyaluronic acid esters photocured for hydrogels for)	
IT	Fibroblast (proliferation, scaffolds; hyaluronic acid esters photocured for hydrogels for)	
IT	124-22-1DP, Dodecylamine, amide with hyaluronic acid esters 601468-77-3DP, amide with dodecylamine 601468-77-3P, Hyaluronic acid 2-hydroxy-4-(2-hydroxyethoxy)-2-methylpropiophenone ester sodium salt 601468-78-4P RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses) (hyaluronic acid esters photocured for hydrogels)	

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Aeschlimann; WO 0016818 A 2000 HCAPLUS

- (2) Fidia Advanced Biopolymers Srl; WO 9637519 A 1996 HCAPLUS
- (3) Hercules Incorporated; EP 0749982 A 1996 HCAPLUS
- (4) Nguyen, K; BIOMATERIALS 2002, V23(22), P4307 HCAPLUS
- (5) Seikagaku Corporation; WO 9718244 A 1997 HCAPLUS
- (6) Waki; US 6031017 A 2000 HCAPLUS

=> b reg

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STRUCTURE FILE UPDATES: 24 AUG 2005 HIGHEST RN 861772-82-9

DICTIONARY FILE UPDATES: 24 AUG 2005 HIGHEST RN 861772-82-9

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\*\*\*\*\*  
\*  
\* The CA roles and document type information have been removed from \*  
\* the IDE default display format and the ED field has been added, \*  
\* effective March 20, 2005. A new display format, IDERL, is now \*  
\* available and contains the CA role and document type information. \*  
\*  
\*\*\*\*\*

Structure search iteration limits have been increased. See HELP SLIMITS for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:  
<http://www.cas.org/ONLINE/DBSS/registryss.html>

YOU HAVE REQUESTED DATA FROM FILE 'HCAPLUS' - CONTINUE? (Y)/N:n

=> d ide l5 tot

L5 ANSWER 1 OF 3 REGISTRY COPYRIGHT 2005 ACS on STN

RN 601468-78-4 REGISTRY

ED Entered STN: 09 Oct 2003

CN Hyaluronic acid, ester with 2-hydroxy-1-[4-(2-hydroxyethoxy)phenyl]-2-methyl-1-propanone, phenylmethyl ester, sodium salt (9CI) (CA INDEX NAME)

MF C12 H16 O4 . x C7 H8 O . x Na . x Unspecified

PCT Manual registration, Polyester, Polyester formed

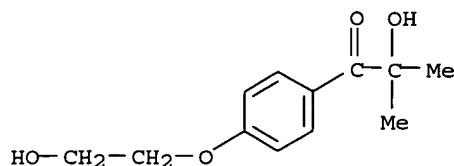
SR CA

LC STN Files: CA, CAPLUS, USPATFULL

CM 1

CRN 106797-53-9

CMF C12 H16 O4



CM 2

CRN 9004-61-9  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 3

CRN 100-51-6  
 CMF C7 H8 O

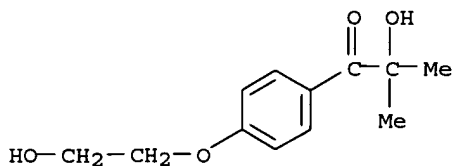
HO-CH<sub>2</sub>-Ph

1 REFERENCES IN FILE CA (1907 TO DATE)  
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 2 OF 3 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 601468-77-3 REGISTRY  
 ED Entered STN: 09 Oct 2003  
 CN Hyaluronic acid, ester with 2-hydroxy-1-[4-(2-hydroxyethoxy)phenyl]-2-methyl-1-propanone, sodium salt (9CI) (CA INDEX NAME)  
 OTHER NAMES:  
 CN Hyaluronic acid 2-hydroxy-4-(2-hydroxyethoxy)-2-methylpropiophenone ester sodium salt  
 MF C12 H16 O4 . x Na . x Unspecified  
 PCT Manual registration, Polyester, Polyester formed  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL

CM 1

CRN 106797-53-9  
 CMF C12 H16 O4



CM 2

CRN 9004-61-9  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

1 REFERENCES IN FILE CA (1907 TO DATE)  
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 3 OF 3 REGISTRY COPYRIGHT 2005 ACS on STN

RN 124-22-1 REGISTRY

ED Entered STN: 16 Nov 1984

CN 1-Dodecanamine (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Dodecylamine (8CI)

OTHER NAMES:

CN 1-Aminododecane

CN 1-Dodecylamine

CN Alamine 4

CN Amine BB

CN Armeen 12D

CN Farmin 20D

CN Kemamine P 690

CN Lauramine

CN Laurinamine

CN Laurylamine

CN Monododecylamine

CN Monolaurylamine

CN n-Dodecylamine

CN n-Laurylamine

CN Nissan Amine BB

FS 3D CONCORD

DR 126162-08-1, 27177-40-8

MF C12 H27 N

CI COM

LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN\*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, CSCHM, DDFU, DETHERM\*, DIPPR\*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN\*, HODOC\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MSDS-OHS, NIOSHTIC, PIRA, PROMT, PS, RTECS\*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB

(\*File contains numerically searchable property data)

Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)

H<sub>2</sub>N<sup>+</sup>-(CH<sub>2</sub>)<sub>11</sub>-Me

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

4960 REFERENCES IN FILE CA (1907 TO DATE)

744 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

4968 REFERENCES IN FILE CAPLUS (1907 TO DATE)

15 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> b wpix;d all drn dcn l6 tot

FILE 'WPIX' ENTERED AT 15:11:54 ON 26 AUG 2005

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FILE LAST UPDATED: 23 AUG 2005 <20050823/UP>

MOST RECENT DERWENT UPDATE: 200554 <200554/DW>

DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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 DOCUMENTATION NOW AVAILABLE IN DERWENT WORLD PATENTS INDEX  
 FIRST VIEW - FILE WPIFV.  
 FOR FURTHER DETAILS: <http://www.thomsonderwent.com/dwpifv> <<<

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 FOR DETAILS. <<<

'BIX BI,ABEX' IS DEFAULT SEARCH FIELD FOR 'WPIX' FILE

L6 ANSWER 1 OF 1 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN  
 AN 2003-876823 [81] WPIX  
 DNC C2003-247398  
 TI Ester derivatives of hyaluronic acid or hyaluronic acid derivatives, for  
 use as hydrogel material, comprising some carboxylic groups which are  
 esterified with propiophenone derivatives.  
 DC A11 A96 B05 B07 D22  
 IN BELLINI, D; ZANELATO, A M  
 PA (FIDI-N) FIDIA ADVANCED BIOPOLYMERS SRL; (BELL-I) BELLINI D; (ZANE-I)  
 ZANELATO A M  
 CYC 104  
 PI WO 2003076475 A1 20030918 (200381)\* EN 27 C08B037-08  
 RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS  
 LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW  
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK  
 DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR  
 KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL  
 PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU  
 ZA ZM ZW  
 AU 2003227050 A1 20030922 (200431) C08B037-08  
 EP 1519962 A1 20050406 (200523) EN C08B037-08  
 R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU LV  
 MC MK NL PT RO SE SI SK TR  
 US 2005119219 A1 20050602 (200537) A61K031-715 <--  
 ADT WO 2003076475 A1 WO 2003-EP2538 20030312; AU 2003227050 A1 AU  
 2003-227050 20030312; EP 1519962 A1 EP 2003-743875 20030312, WO  
 2003-EP2538 20030312; US 2005119219 A1 WO 2003-EP2538  
 20030312, US 2004-507472 20040910  
 FDT AU 2003227050 A1 Based on WO 2003076475; EP 1519962 A1 Based on WO  
 2003076475  
 PRAI IT 2002-PD64 20020312  
 IC ICM A61K031-715; C08B037-08  
 ICS A01N043-04; C08J003-075; C08J003-28  
 AB WO2003076475 A UPAB: 20031216  
 NOVELTY - Ester derivatives of hyaluronic acid or its derivatives,  
 comprise some carboxylic groups which are esterified with propiophenone  
 derivatives (I).  
 DETAILED DESCRIPTION - Ester derivatives of hyaluronic acid or its  
 derivatives, comprise some carboxylic groups which are esterified with  
 propiophenone derivatives of formula (I).  
 R = hydroxy, or 1-20C alkyloxy or heterocycle (both substituted by  
 hydroxy group(s)); and  
 R1-R3 = H, hydroxy, or 1-20C alkyl or 1-20C alkyloxy (optionally  
 substituted with hydroxy group(s)).  
 INDEPENDENT CLAIMS are also included for:

(a) preparation of the ester derivatives, comprising reacting hyaluronic acid or its derivatives with the bromide of (I), where hydroxy group(s) of the substituent R is replaced by Bromine;

(b) a hydrogel material consisting of a cross-linked product obtained by photocuring an ester derivative; and

(c) a kit for implanting engineered cartilage by arthroscopic surgery, comprising an ester derivative dissolved in water or in an aqueous solution, a container for the ester derivative, and an endoscopic probe with optic fibers for the photocuring of the ester derivative.

USE - Useful in hydrogel material for biomedical materials, healthcare products, surgical articles consisting of catheters, guide channels, cardiac valves, vascular stents, soft tissue prostheses, prostheses of animal origin such as porcine heart valves, artificial tendons and organs, contact lens, and intra-ocular lenses, blood oxygenators, blood bags, surgical instruments, filtrations systems and laboratory instruments, for scaffolds for the growth of human and animal, pharmaceutical composition for topical, subcutaneous, intramuscular, intra-articular and intra-medullary administration, in the prevention of surgical adhesions, for the preparation of engineered connective tissues, engineered cartilage, viscoelastic substitutes of the nucleus pulposus of the intervertebral disk and visco-integrators of the vitreous humor (claimed).

ADVANTAGE - The hydrogel materials show valuable properties, and have absence of C=C unsaturation in the ester derivatives, without the addition of any component acting as catalyst for the cross-linking reaction and without any unsaturation within the molecule. The hydrogel materials also show sterility, excellent viscoelastic properties, compact, wall-to-wall type, three-dimensional structure, greater mechanical resistance, and have viscoelastic properties that vary according to how long they are exposed to irradiation, and to the type of aqueous solution used to obtain the hydrogel.

Dwg.0/1

FS CPI

FA AB; GI; DCN

MC CPI: A10-E07; A12-S; A12-V00V; B04-C02E; B04-C03; B04-G01; B04-H06; B04-L01; B04-N04; B06-H; B07-H; B10-E02; B10-E04; B10-F02; B12-M10; B14-E11; D09-C01

DRN 0272-S; 0272-U; 0274-S; 0274-U; 0714-P; 0714-S; 0714-U; 1064-P; 1064-S; 1064-U; 1706-S; 1706-U

M1 \*01\* DCN: R03231-K; R03231-T; R03231-Q; R03231-M; R03231-P; R06437-K; R06437-T; R06437-Q; R06437-M; R06437-P

M1 \*02\* DCN: RA0121-K; RA0121-T; RA0121-Q; RA0121-M; RA0121-P

M1 \*03\* DCN: RA00I9-K; RA00I9-T; RA00I9-Q; RA00I9-M; RA00I9-P

M1 \*04\* DCN: RA0120-K; RA0120-T; RA0120-Q; RA0120-M; RA0120-P

M1 \*13\* DCN: RA00H3-K; RA00H3-T; RA00H3-Q; RA00H3-M; RA00H3-P

M1 \*14\* DCN: RA00C8-K; RA00C8-T; RA00C8-Q; RA00C8-M; RA00C8-P

M1 \*15\* DCN: RA00GC-K; RA00GC-T; RA00GC-Q; RA00GC-M; RA00GC-P

M2 \*05\* DCN: RABXF5-K; RABXF5-T; RABXF5-Q; RABXF5-M; RABXF5-P

M2 \*06\* DCN: RABXF6-K; RABXF6-T; RABXF6-Q; RABXF6-M; RABXF6-P

M2 \*07\* DCN: RABXF7-K; RABXF7-T; RABXF7-Q; RABXF7-M; RABXF7-P

M2 \*08\* DCN: R03586-K; R03586-T; R03586-Q; R03586-M; R03586-P

M2 \*09\* DCN: RA04KG-K; RA04KG-T; RA04KG-Q; RA04KG-M; RA04KG-P

M2 \*10\* DCN: R00714-K; R00714-T; R00714-Q; R00714-M; R00714-P

M2 \*11\* DCN: R01064-K; R01064-T; R01064-Q; R01064-M; R01064-P

M2 \*12\* DCN: 0109-97801-K; 0109-97801-T; 0109-97801-Q; 0109-97801-M; 0109-97801-P

M2 \*16\* DCN: R00274-K; R00274-V; R00274-U

M2 \*17\* DCN: R01706-K; R01706-V; R01706-U

M2 \*18\* DCN: R00272-K; R00272-V; R00272-U

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